State of California
CIWMB 225 (Rev. 7/07)

California Integrated Waste Management Board

CONTRACT ALLOCATION PROPOSAL

Project Title: EEI Professional Fundraiser	
Program/Office: OEE	**Concept No.:** 2008-D-5
Requestor/Primary Contact: Mindy Fox	**Fund** (*IWMA, Oil, RMDZ, etc.)*: IWMA
Estimated Contract Amount: $ 200,000	

I. PROPOSAL OVERVIEW

- **Need, Purpose, and Linkage to Strategic Directives**

To date, the Office of Education and the Environment (OEE) and Cal/EPA have procured sufficient funding (over $11.5 million) to complete the production of 85 K-12 curriculum units for the Education and the Environment Initiative (EEI). Most of this funding was received from a number of State agencies. While funding has been secured to complete curriculum production, the curriculum must still be printed and delivered to classrooms in California's 1,059 school districts in order for it to be effective. In addition, teachers must be trained in its use. This proposal seeks $200,000 to hire a professional fundraiser to help secure the estimated $37.5 million that is still needed to print and disseminate the EEI curriculum and to train California teachers in its use. While OEE staff have prepared several grant applications, staff's time is consumed with production of the EEI curriculum. More importantly, OEE lacks the fundraising expertise and necessary relationships to identify the best sources of funding and to write and "network" multiple effective grant applications. This request is consistent with Strategic Directive 11.4: "Secure at least 50 percent of the total funding for EEI public outreach and education from private entities".

- **Description of the proposed project**

The professional fundraiser hired through this proposed contract will be tasked with leveraging the requested $200,000 into millions of dollars of private and foundation funding and in-kind contributions.

OEE's goal is to raise $25 million of the needed $37.5 million from external sources such as foundations, individuals and corporate donors. The remainder can be generated from a variety of state partners, due to the nexus of their environmental messaging and the Education and the Environment Initiative (EEI) Curriculum content.

The professional fundraiser will help identify the best potential funders, provide introductions, and develop proposals and related materials. Contributors may support EEI with either a monetary donation or a contribution of goods or services. Examples of goods or services include: 1) the paper for the EEI Curriculum, 2) the printing of the EEI Curriculum, and 3) the shipping of the curriculum to California's school districts and teachers.

OEE will provide the professional fundraiser with a list of potential donors that expressed their potential philanthropic financial support of the EEI in 2004. This prospective financial support

was predicated on the State of California's funding of the EEI in the initial development and curriculum implementation phases. The professional fundraiser will also provide a roster of potential funders and existing relationships that can be accessed. The fundraiser will take the lead on identifying appropriate parties to participate in a Leadership Funding Council and initiate convening the Council. The fundraiser will assist in the formulation of a fundraising plan and lead the implementation of the plan. The fundraiser will leverage the recent EEI grant award from the David and Lucille Packard Foundation as a successful catalyst for other awards.

- **Expected outcomes and impact if project is not approved**

OEE expects that the professional fundraiser will successfully obtain private sector funding and donations of goods and services for the EEI in the range of $18 - $25 million. If the funding for this proposal is not approved, there will likely be insufficient funds to print and disseminate the EEI curriculum and to train teachers in its use.

- **Measurement of project success/outcomes**

The amount of funding raised and resources committed will serve as the measure of success of this project.

II. PRIMARY TASKS, DELIVERABLES AND MILESTONES

Because the EEI curriculum is slated for approval by the State Board of Education in January 2010, OEE's goal is to have the curriculum in the hands of trained teachers by the beginning of the 2010/2011 school year (August/September for most school districts). Consequently, commitments of funding for printing and dissemination of the curriculum and training of teachers should be obtained prior to 2010.

Primary Tasks

Task 1: Review draft Fundraising Plan

Deliverable: Fundraising Plan Comments
Due Date: April 15, 2009

Task 2: Identify appropriate members for the Leadership Funding Council
Deliverable: Roster
Due Date: April 15, 2009

Task 3 : Develop a spreadsheet of potential funders (individuals, foundations and corporations) of the EEI curriculum that includes, but is not limited to, the following information:

- name of organization
- maximum award amount
- typical award amount
- summary of funding criteria
- ranking of how closely the EEI curriculum fits the funding criteria

- application due date(s)

Deliverable: Spreadsheet of potential funders
Due Date: April 17, 2009

Task 4: Convene Council, facilitate discussion
Due Date: May 1, 2009

Task 5: Finalize the Fundraising Plan that includes, but is not limited to:

- the targeted grants
- businesses targeted for donations of goods and/or services
- a strategy (including timeline) for developing the grant applications and soliciting donations

Deliverable: Fundraising Plan
Due Date: May 15, 2009

Task 6: Assist in preparation of funding prospectus and related materials
Deliverable: Marketing materials
Due Date: May 30, 2009

Task 7: Write and submit grant applications

Deliverable: Grant applications
Due Dates: To be determined – based upon funder application due dates

Task 8: Advise EEI Management Team regarding solicitation of goods and/or services from businesses

Deliverable: Advice regarding strategies for soliciting goods/and or services from businesses
Due Date: As needed

CONTRACT ALLOCATION PROPOSAL

Project Title: Statewide Program EIR for Anaerobic Digestion Facilities	
Program/Office: WCMP	**Concept No.:** 2008-D-7
Requestor/Primary Contact: Ted Rauh	**Fund** (*IWMA, Oil, RMDZ, etc.)*:**I IWMA**
Estimated Contract Amount: $ 250,000	

I. PROPOSAL OVERVIEW

Compostable organic materials comprise over 25% of the waste stream disposed in California landfills. In February 2007, the Board adopted a set of Strategic Directives (SD), including 6.1, which calls for a 50% reduction in the amount of organics being disposed in landfills by 2020. To achieve this, an additional 15 million tons of organics will need to be recycled annually, requiring the siting of new organic diversion facilities as well as the expansion of existing facilities.

In support of SD 6.1, this contract will provide crucial information for the preparation and circulation of a Program Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA) to assist in the siting of new, and expansion of, anaerobic digestion facilities throughout California. A Program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related having generally similar environmental effects which can be mitigated in similar ways. A program EIR would directly support and reduce the need for duplicative review for site specific environmental documentation (e.g. EIR, Mitigated Negative Declaration, Negative Declaration, etc.) that may be required by the Counties'/Cities' lead agency to address the potentially significant impacts for an individual facility's location, operation, and infrastructure. Facilities that would be addressed in this Program EIR include stand alone anaerobic digesters receiving solid wastes, anaerobic digesters associated (co-located) at solid waste facilities (including landfills, compostable material handling facilities, and transfer stations).

Potential environmental impacts from these types of facilities would be analyzed and feasible mitigation measures identified and contained in one document that can be used for these types of projects Statewide. These analyses would be utilized in identifying, defining, and ultimately determining the universal level of environmental impacts from anaerobic digestion facilities operating within California. This project would also dovetail with current Board projects such as the climate change measure for anaerobic digestion in the AB 32 Scoping Plan and the development of best management practices for organics facilities. The ultimate goal of this project would be the facilitation of expansion of existing organic diversion facilities and siting of new facilities.

II. PRIMARY TASKS, DELIVERABLES AND MILESTONES

1. Identify and describe potentially significant environmental impacts and feasible mitigation measures/best management practices common to anaerobic digestion facilities (e.g. odor, greenhouse gas emissions, percentage in reduction of incoming tonnage versus

outgoing tonnage, and how they may be applied in California for CEQA compliance environmental documents.

2. Identify the location and typical 'environmental setting' where the anaerobic digesters would be located (e.g. non-residential).

3. Identify existing Environmental Impact Reports (EIRs), Environmental Impact Studies (EISs) and other environmental assessments that have already been developed for similar activities.

4. Develop a comprehensive project description based on the results of tasks 1-3.

5. Search for, and hire a CEQA consultant to do sections of the EIR and or studies for the draft Program EIR that Board staff cannot accomplish (e.g. general impacts to endangered and threatened species within the State).

6. Establish and support a technical advisory group, facilitated by CIWMB staff, to include representatives from State Water Resources Control Board staff, staff from key Regional Water Quality Control Board, staff from key Air Quality Management Districts/ Air Pollution Control Districts, and Air Resources Board to gain input relative to water and air quality aspects of the Program EIR.

7. Have the CEQA consultant identify and recommend the various models and best management practices associated with anaerobic digestion and those that could be applied to anaerobic digestion activities within California to the Board's technical staff.

8. Development and analysis of models provided to the Board's technical staff that identify and address issues associated with specific waste streams and the potential impacts to the environment and public health and safety, as well as the methods used in the models to determine potential health risks and/or hazards as a result of the development and operation of anaerobic digestion activities.

9. Analysis of models, including pros and cons, relative to how they address current science, market dynamics, and new technologies in the Program EIR.

10. Finalize and review the draft Program EIR for circulation and comment by State Responsible and Trustee Agencies and the public.

11. Promote the availability of the draft Program EIR throughout the State.

Total timeframe - six to twelve months depending upon the availability of any existing similar environmental assessments that may be used for CEQA compliance.

State of California
CIWMB 225 (Rev. 7/07)

California Integrated Waste Management Board

CONTRACT ALLOCATION PROPOSAL

Project Title: Correlation between Compost Pile Temperature, Moisture Content, and Air Emissions	
Program/Office: STARS/RATS	**Concept No.:** 2008-D-9
Requestor/Primary Contact: $30,000	**Fund** (*IWMA, Oil, RMDZ, etc.)*: IWMA
Estimated Contract Amount: $ $30,000	

Proposal Overview

This allocation would support direct scientific research to prove or disprove the efficacy of several key composting parameters for their suitability as air emissions reduction best management practices (BMPs). The San Joaquin Valley Unified Air Pollution Control District (District), and the Valleywide Air Pollution Study Agency have already allocated resources for this endeavor. The Merced County Solid Waste Regional Agency has tentatively offered a donation of its compost site, manpower and equipment to assist in the study. The Air Resources Board is also interested in collaborating on this project.

Currently, the District's Proposed Rule 4566, which intends to reduce emissions from greenwaste recycling operations, contains a series of proposed BMPs composters may implement to reduce emissions and avoid more expensive solutions. These BMPs are proven to make good compost, but have never been tested to determine whether they offer a measureable air quality benefit. Should Rule 4566 go forward as written, a lack of scientific basis for the BMPs leaves the Rule open to legal challenge from groups concerned about siting compost facilities near where they live. Such an action could extend indefinitely the regulatory limbo, discouraging large investments in composting facilities.

The District recently delayed adoption of Rule 4566 for 18 months in order to perform basic research to validate, adjust or refute the compost air quality BMPs, and has appropriated $35,000 from its budget toward the project. Up to $200,000 in additional funding has been pledged by the Valleywide Air Pollution Study Agency, a joint powers authority set up to provide funding for this type of research. The ARB may become involved in order to add a GHG component to the planned testing of criteria pollutants and precursors. This type of research is extremely expensive, and even $230,000 is unlikely to be sufficient to test all of the most promising BMPs. This allocation would allow the CIWMB to provide additional available resources and be more directly involved in the study design process.

Validating compost BMPs for emissions benefits is important because alternatives to BMPs typically involve enclosure and aeration, technologies which are expensive to build and operate. If composters are forced to charge higher tipping fees to pay for expensive new emissions reductions technologies, the economic advantages of landfilling organic materials will be exacerbated, potentially forcing compost facilities to close and driving even more compostable materials to the landfill, all of which is contrary to the goal of CIWMB Strategic Directive 6.1. Uncertainty surrounding air quality regulations is already stifling compost industry growth in all of California's impacted air basins, and cost-effective BMPs with real air quality benefits are desperately needed.

Project Description

Compost piles will be built at a publicly run compost facility in Merced. Emissions from the piles will be measured with a "flux chamber," the industry-accepted device for this purpose. Flux chamber placement will be guided by using temperature probes inserted deep into the pile, with the goal to measure emissions fluxes on the pile surface directly above areas identified within specific temperature ranges; for instance, 135-140, 145-150, 155-160, and 165-170 degrees F. Testing will be repeated on multiple days during the active composting phase, defined as the first three weeks, and less frequently over the curing phase, defined as the second 3 weeks. After removal of the flux chamber, the area below the surface will be sampled and tested for moisture content, pH and carbon-to-nitrogen (C:N) ratio. Gases collected by the flux chamber will be measured using the appropriate method for the particular constituent.

Expected outcomes

There are three potential outcomes from the study: the BMPs will either be validated, adjusted or refuted.

- If the BMPs are found to have emissions benefits, then the rule may go forward as written. Composters retain the benefit of using the BMP in lieu of enclosure or aeration. The scientific basis of the regulation is upheld, allowing regulators to proceed with confidence in the efficacy of the proposed rule.
- If the BMPs are adjusted, then the rule will be rewritten to conform to the findings. In the best possible scenario, composters would benefit from a less restrictive BMP that delivers measurable clean air benefits. There is a smaller chance that the research would result in a more restrictive BMP; however, composters would still benefit from any operational BMP being available, in lieu of enclosure or aeration. Regulators may offer this option with confidence.
- If a BMP is refuted, it may be discarded. Composters benefit from not having to comply with a BMP that delivers no clean air benefits.

Because air districts often use another district's regulation as a template, the benefits of this research will extend well beyond the San Joaquin Valley.

How this project relates to previous work funded by the CIWMB, and how it will advance what is already known

The CIWMB has funded and performed two prior studies on compost emissions.

- In 2002, the CIWMB's "Tierra Verde" study tested the emissions impacts of two potential BMPs, C:N ratios in feedstock, and turned vs. static piles. The results of this study have informed the current debate on BMPs. This study is published on the CIWMB web site.
- The second study funded by the CIWMB, known as the "Modesto Study," attempted to discern a compost emissions factor for a windrow compost facility, and test the emissions-reducing potential of two BMPs, including a pair of commercial additives and a layer of compost on top of active compost windrows, known as a pseudo-biofilter. This study has informed the current debate about compost emissions factors, and has served to effectively counter-balance other

studies which paint a much more damaging picture of compost emissions. The "Modesto Study" also proved the viability of the tested BMPs, and the pseudo-biofilter BMP has been included in draft Rule 4566. This study was published on the CIWMB web site and was the subject of an article in BioCycle magazine.

- The proposed study will expand the knowledge base in this subject area by attempting to find a correlation between the process variables already in use by nearly all composters—temperature and moisture content—and air emissions. These particular operational parameters have never been studied for emissions impacts before. In addition, existing regulations require composters to monitor and log compost pile temperatures daily, so this potential BMP poses little operational burden. The results of the study will guide rulemaking by the air district in a direction which will provide the most practical and inexpensive emissions reductions for most compost facility operators.

Project goals and deliverables

This project will:

- Deliver the first scientific data on potential correlations between compost pile temperatures and moisture levels with emissions of volatile organic compounds and greenhouse gases.
- Provide the first scientific data on greenhouse gas emissions from compost piles, which will assist the CIWMB in assessing the net environmental benefits of commercial compost operations,
- Provide the basis for a research report that may be published on the CIWMB web page, as well as articles to be published in at least one reputable peer-reviewed scientific journal, as well as in one industry trade publication, such as BioCycle,
- Build working relationships with qualified researchers within the Cal State and UC systems, and strengthen cross-media working relationships with air quality agencies,
- Build capacity within the Central Valley to advance the methodology and competence of air emissions studies, which is critical for development of rules which will protect California's environment; and,
- Identify at least one potential practical BMP for additional study, which would be funded by federal or state grants.

Impact if funding for the project is not approved this FY

If the funding is not approved, the CIWMB will have little or no influence on the direction of the study, which will go forward without our participation. Lack of CIWMB influence may potentially result in a study which does not sufficiently focus on finding cost-effective BMPs that reduce emissions. Emissions studies require considerable planning. The study must be designed this winter, bid by spring, and implemented no later than next summer in order to have results in time for the District's stated rulemaking date of the 3rd quarter of 2010. Money appropriated by the CIWMB in future years will not be available within the timeframe required by the District for study planning. Also, by not participating in the study, the CIWMB will miss an opportunity to build cross media relationships that will assist inresolving an issue which is currently blocking attainment of Strategic Directive 6.1.

Primary tasks and milestones

Task	Timeline
Prepare draft study plan	Dec. 2008 – Jan. 2009
Convene scientific review panel to vet study plan	Jan.-Feb. 2009
Finalize study plan and draw up RFP	Feb.-Mar. 2009
Bid study plan and award contract	Mar.-May 2009
Perform field research	May-Aug. 2009
Review preliminary results and make adjustments	Aug.-Oct. 2009
More field research if necessary	Oct.-Dec. 2009
Draft final report	Jan.-June 2010
Draft articles for journals and magazines	June-Dec. 2010
Apply for grants to enhance work	Dec. 08-Jan. 09 and as available

Deliverables

Project Request for Proposals	Mar. – Apr. 2009
Field Research Data	Aug. – Oct. 2009
Final Research Report	Apr. – Aug. 2010
Articles in journals andmagazines	Jun. – Dec. 2010